University News

Dr. C.N.R. Rao, Director, Indian Institute of Science, Bangalore, delivering the Convocation Address at the Indian Institute of Technology, Madras.

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Editor :
SUTINDER SINGH

New Tasks of the University System

Ramlal Parikh*

The university system of our country can be viewed in two ways. One way is to view it in its relation to macro-systems of our country and abroad. The other way is to see its working at micro-level in terms of its relations with the mass of people. It is in this second sphere that the system is confronted with new and challenging tasks.

The experience of over 125 years of our university system is by and large an experience of macro-level functioning, devoid of direct contacts with the people at the grass-root. This has resulted into a serious type of alienation of universities from the people as such. Not only the university system is alienated from the people but its products, the students get totally alienated and uprooted from their family and community. This double-pronged alienation is acting as a serious handicap in making the university system as a whole, an instrument of social change and service to the people at the grassroots. The huge infrastructure of the universities—both physical and human—is generally not applied to the service of the community. Although there are some islands of hope in the midst of the oceanic paraphernalia of 161 universities and institutions, the system as such has not been able to extend its numerous services for the benefit of the common people.

It has on the whole served well in providing trained manpower to the macro-level institutions. This is the function which our universities have been used to do so far. But with rapidly rising population and increasing spread of elementary education, it has become obvious that universities cannot escape their social obligations towards the common people. This new context requires some institutional as well as functional changes in the system itself. This will require a change in the concept of "Standards" from mere aquisition of information to standards of performance in the field and to inculcation of new values and attitudes.

The UGC's classic policy statement of considering extension as a third dimension of higher education—equal in importance to teaching and research—becomes most important and relevant now. The entire question of standards and innovative developments as well as role of universities in national development and relevant research depends on how the system absorbs the concept of "Extension Culture" as its integral component. If this approach is adopted by the system, the excellence of a student will be determined in addition to the book-knowledge, in terms of his or her ability to articulate knowledge from the field experience and his or her performance of serving the people through extension work.

This would require "Extension" to be an integral part of curricula and concurrent as well as terminal evaluation. It would also require a different type of time allocation in instructional hours. A beginning should be made by providing atleast 25% of the time allocation for off-campus extension work, through Community-Education type programmes.

The policy statement of the UGC on extension as a third dimension will need following institutional changes, for its effective and sustained implementation:

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* *Vice-Chancellor, Gujarat Vidyapith, Ahmedabad.*

1. Statutory Acts of all the universities should provide for 'extension' in clear and unequivocal terms. This is not so in most of the prevalent Acts. In most cases reference to 'extension' is indirect and implied. This should be explicit;
2. Evaluation of extension work should be included in the final grade-sheet or mark-sheet;
3. Every major subject of studies should provide for off-campus extension work by its students, as an integral part of curricula. Off-campus extension work will be designed by each Department of Studies according to their needs rather than a centralised agency, much less an outside agency whether governmental or non-governmental;
4. Every university and college may be required to prepare a bench-mark and perspective report on the various types of extension services needed by the community or communities adopted by it. Instead of a fragmented, slip-shod, ad hoc prevalent approach to extension work, there should be a communitarian approach with an integrated and systematic plan of work. The plan should provide for in-built monitoring and evaluation;
5. NSS should be integrated in the extension work of every department and should form part of internal as well as external assessment; and
6. Nearly 50% of the colleges have hardly a bare minimum enrolment of 250 or 300 students. Thus, we have about 2000 to 2500 sub-viable colleges in terms of enrolment of students. All these colleges can be transformed into active centres of 'Extension Culture'. It will be easier to do so here because of their limited numbers and their location in rural areas. Similar transformation may be easier in cases of university colleges and colleges of institutions deemed to be universities also. Bigger colleges of urban areas may be taken up later in the second phase. We can thus resolve the inertia and reluctance to change that is put forward in the name of big number of students.

Such measures will make extension a key to transformation of the entire higher education and to make it conducive to the needs of the people at micro-level. It would also protect the universities from collapsing due to collapse of macro-systems. While universities may continue its relation with macro-system, it would remain dependent on it. The foundation of university system in its own interest, must be on macro-systems. The 'extension' thus will not be a mere activity but will be the bed-rock of the entire system.

II. Shedding Segmentisation

The second important question that should engage our immediate attention is segmentisation of the system that is increasing of late in the name of specialisation. The university system as such is getting impoverished day by day due to separation of a agricultural, technical, medical and research institutions from its fold. The university system, by its very nature, is multilateral and multi-dimensional. The new fashion of unilateralism is against its spirit. The isolation of agricultural universities, IITs and technological universities etc. has harmed both—the mainstream of the university system as well as the isolated institutions. There seems to be a growing tendency to open a specialised institution for every crucial problem out of the system and then blame the system as dysfunction. A university devoid of all good research and extension institutions will be a fleshless skeleton. How can a mere skeleton serve the nation and its people ? It is my humble view that while the separation of agricultural, scientific and technological institutions might have helped their subject-area itself, it has not enriched the higher education system as such and to that extent the nation as such. It is therefore necessary to reconsider this approach and atleast stop going further in establishing subject-wise universities and begin to open up these specialised institutions for other subjects like humanities and social sciences also, so as to secure a meaningful interaction between various disciplines of studies and research, which are essential for our national development.

The need for interdiciplinary or multidisciplinary approach can hardly be over-emphasized. Instead of helping every university to become open, starting of a separate open university is a negation of the concept of university. While there can be one to two specialised institutions to work as a beacon light in the subject of specialisation, a separate stream of open universities will further impoverish the system. Following institutional linkages to integrate the specialised institutions in the university system may be considered:

1. Universities including institutions deemed to be universities should be encouraged to recognise specialised institutions for research and extension work;

(2) All IITs, agricultural universities and national laboratories etc. should provide for teaching, research or extension in subjects other than their specialisation with a view to promoting interdisciplinary interaction; and

(3) ICAR, CSIR, Technical Education Boards etc. should give up their conservist, preservist and isolationist outlook and encourage atleast good rural colleges, institutions deemed to be universities and university colleges to conduct agricultural and technical courses in undergraduate education under the same roof with a view to provide exposition to applied knowledge of the scientific and technical subjects and should facilitate appropriate accredition and bridges. This will facilitate restructuring of undergraduate education as envisaged by UGC guidelines.

The approach of the universities should be integrative, non-segmentive and holistic. Such an approach alone will forge the curricular changes in our system.

III. Management of Universities

The report of the Committee on Working of Central Universities has clearly established that imitation of elected representation of various sections on the university authorities has created more rivalries than harmony. The electioneering of whatever type or size does not promote involvement for the common ideal but promotes clash of interests and group-rivalries. No amount of welfare measures or amenities can prevent these rivalries to grow. It therefore seems inescapable to implement the recommendations of the Report on Working of Central Universities in this regard of creating Governing Bodies instead of Court or Senate and of introducing rotating system of representation of teachers.

It is also important to transform the administrative apparatus of universities into educational administration rather than just copy the Government pattern. Atleast the important decision-making cadres should consist of persons with a different motivation in the context of higher education community. All persons from head-clerks, superintendents and above should not only be adequately educationally qualified, but trained in educational administration to handle it in an enlightened manner.

The existing practice of leaving administrative support in lurch, while augmenting academic programmes is not at all desirable. A department will be incomplete without good technical and administrative support particularly when new means of communication require the help of several types of technical and administrative skills and teachers alone cannot deal with it.

IV. Need for action-research

Research input in all our development schemes is very inadequate. The university system is most competent to do it. But it lacks organic linkage with development programmes. All universities should be equipped with regional development centres to actively involve in the grass root development of the region demarcated for them. The research of the grass root movements of programmes is most essential to provide feedback to our planning.

While fundamental research may continue in some high quality institutions, most universities and teachers should engage in action-research of shorter duration so that there is continuous linkage and feeding of scientific data from below for policy makers. Highly expeditious procedures for consideration of action-research projects particularly in social sciences and humanities needs to be adopted.

V. Value Orientation

The university system now cannot be neutral and indifferent towards its responsibility for value orientation through education. The inculcation of human values and moral values should receive very high attention. The value orientation cannot be promoted just by lectures but by exposing students to persons and institutions of high moral commitment through placement and observational visits as a part of curricular programme not linked with examinations but receiving full encouragement and recognition otherwise. It can also be inculcated through courses like Indian Cultural Heritage, Gandhian Thought, Comparative Religion etc.

VI. The Educational System of the Gujarat Vidyapith

In the above background it may be worthwhile to study the educational system of the Gujarat Vidyapith from pre-primary to the Doctorate level, which works on certain core principles such as:

(1) All learning to be devoted to building of character. ability, education and conscientiousness for the regeneration of our country;

(2) Adoption of means which are not inconsistent with truth and non-violence;

(3) Manual training be given same importance as intellectual education through occupational and manual training as an integral part of all curricula;

(4) The needs of village dwellers to have principal consideration in formulating priorities of education; and

(5) Equal regard for all established religions through teaching of all religions with a view to inculcating truth and non-violence.

The education system is enriched by community life through daily congregation, some form of concurrent or periodic community service, learning of handicrafts, block placement and preparation of a project report based on field investigation of some aspects of our social or economic development. This has resulted into more than 3000 micro-level project reports which provide indigenous data on village communities of Gujarat. All these elements are reflected in varying degrees at all levels of education of the Vidyapith which runs pre-primary, primary, secondary, higher-secondary, collegiate, postgraduate and research institutions. The Tribal Research Institute run by it is significant in terms of its planning cell which prepared micro-level development plans for the State Government.

The following aspects of the work and programmes of the Vidyapith may be relevant for the university system of our country :

(1) Number of admissions to professional courses like Social Work and Teacher Education is restricted to correspond the field-work facilities and supervision for intensive work. The admissions are determined through an entrance test and interview and on the basis of a total view of the marks of the last examination, entrance examination and response of the candidate in the interview by the admission committee.

(2) Consequent on the adoption of 10+2+3 pattern of secondary and collegiate education, the undergraduate courses have been restructured with a blend of foundation courses, applied courses and vocational courses and 7 monts off-campus placement, followed by a project report on social or economic investigation. The vocational courses included are Agricultural Extension, Animal Husbandary, Home Science with reference to child development and nutrition, clothing and textiles, soap making, electronic repair etc.

(3) Since undergraduate education and professional courses like social work and teacher training require intensive training, residence in hostel is necessary and day scholars are not admitted but at the postgraduate level in some subjects of liberal-education like Gandhian Thought, Non-violence, History, Education, etc., the Gujarat Vidyapith favours Correspondence Courses and Distance Education are useful, particularly to teachers and social workers in rural areas who will not have access to postgraduate education. Even in Correspondence Courses, some element of independent placement for experiential learning will be provided. At present there is a provision for Correspondence Course in Gandhian Thought and preparations for similar correspondence course for M.A. Education are going on.

(4) Reservation of seats 22.5% for SC & ST students is observed in admissions to all courses subject to minimum qualifications.

(5) The syllabi at all levels have been restructured into unit-courses and greater use of audio-visual aids is encouraged. Internal evaluation through term papers and weekly tests and seminars is an established requirement.

(6) There is a close liaison between the Vidyapith and employing institutions like rural schools, primary teacher-training colleges, cooperatives, milk dairy institutions, social welfare agencies, social research institutes, rural development corporations and other voluntary rural service agencies to facilitate early employment of students. The Rural Development Corporation of Gujarat Government takes its interviews for its recruitment in the Vidyapith campus itself, sometimes even before the results are announced.

(7) Minimum qualifications of the UGC have been accepted and implemented by the Gujarat Vidyapith and regulations are being changed accordingly.

(8) The vacation period for teachers is limited to total 35 days in a year including Diwali holidays. Considerable number of teachers are in non-vacation category because of several summer courses. The average annual working days are

about 230 excluding examination period and there is a full 41 hour week for teachers who are required to be in the campus for 7 hours a day except on Saturday when it is six hours.

(9) A two-monthly research journal in Gajarati publishes learned articles of teachers and scholars and is given to all students at half-price.

(10) The Vidyapith have completed 51 research projects of direct use in tribal development and submitted the reports to the Social Welfare Department which has in many cases reflected the findings of these reports in their programmes. 12 projects are still on hand. In view of the long and intensive experience of field research in rural and tribal areas, several Government and semi-Government agencies are approaching the Vidyapith for advice and consultation. It has therefore been decided to establish a Social Research Cell for such consultancy work.

(11) At M.A., M. Phil and Ph.D. level, all students have to appear for a viva on their dissertation. Annotated bibliography of these dissertations is already published.

(12) The Adult and Continuing Education Centre of the Vidyapith is training all functionaries particularly supervisors and projects officers of the Adult Literacy Programmes in the State. It trains about 500 persons every year and has produced about 80 books for neo-literates including 5 primers and teachers' handbooks etc. It has a wide network of 160 Adult Literacy and Continuing Education Centres. Work done by students in this field is accredited as part of curricular studies. A bench-mark survey of over 40 villages is just completed to determine the learning needs of the people including population education and health education. The Vidyapith runs the State Resource Centre for Adult Literacy.

(13) The students manage their hostels which are considered centres of experiential learning and just places of accommodation. There are no peons or sweepers in all the five hostels of the Vidyapith. Students themselves clean their rooms, dormitories and toilets as well as their own utensils in the dining hall and by turn help the cook in preparing and serving the food. The food is very simple but hygienic and nutritive.

(14) There should be adequate environmental support for any educational endeavour. The campus development in terms of adequate and appropriate tree-planting is very important and conducive to education. There is a cow-shed and milk dairy attached to all the three campuses of the Vidyapith. Consequently there is a Gobar-gas plant as well. Students are encouraged to plant trees like ucalyptus, subabul etc. which can grow rapidly and give self-employment from sale of its wood every five years. There is also a proposal to develop a medicinal plant complex. A collection of such plants for herbarium is already made.

However the provision for environmental development of the campus is extremely meagre and UGC needs to augment it.

(15) Krishi Vigyan Kendra (KVK) is run on the rural campus of the Vidyapith with the support of

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ICAR. KVK trains about 1000 farmers every year through three short term peripatetic courses and on-farm demonstrations is new seeds and new crops, new irrigation methods and cultivation methods.

(16) Through Appropriate Technology Centre solar-cooker and bio-gas are popularised in villages.

All these programmes operate simultaneously and concurrently and therefore provide very advantageous interaction for making the university system dynamic and close to the soil.

GUJARAT VIDYAPITH
AHMEDABAD-380014

Restructured Undergraduate Course

Outline of "SAMAJ VIDYA VISHARAD" COURSE AT THE RURAL CENTRE OF THE GUJARAT VIDYAPITH

MAHADEV DESAI GRAM SEVA MAHAVIDYALAYA

FIRST YEAR

A. Foundation Courses

1. Indian Cultural Heritage & Comparative Religion
2. Gandhiji's Life, Work and Thought
3. Rural Society
4. Rural Administration
5. Gujarati & Hindi Languages including Urdu
6. English language for comprehension

B. Applied Courses

1. Agriculture or Agriculture Home Science
2. Principles of Adult Education
3. Principles of Community Life
4. Agriculture Economics
5. History of Constructive Work

C. Productive Work Experience

1. Farming or Agro-industry
2. Ambar Spinning

D. Extension Work

1. Conducting Adult Education Classes
2. Observation of Social Work Institutions
3. Report Writing on Community Work
4. Participation in Work Camp

SECOND YEAR

A. Foundation Courses

1. Social Research Methods
2. Rural Planning
3. Methods of communication through language
4. Cooperative Movement
5. Social Legislation

B. Applied Courses

1. Animal Husbandary or Rural Technology or Agriculture Home Science
2. Family Welfare & Family Planning
3. Child Welfare
4. Nature Cure
5. Khadi & Village Industries
6. Educational Extension
7. Principles of Community living

C. Productive Work Experience

1. Cow Breeding or Agro-Industry
2. Soap making

D. Extension Work

1. Teaching in Primary School
2. Observation of functional activities
3. Agriculture Extension through Training of Farmers

THIRD YEAR

A. Applied Courses

1. Institutional Management
2. Principles of Supervision
3. Social Investigation and preparation of dissertation based on it.
4. Viva

B. Extension Work

Two placements of four months each as an internee in a social service institution and a productive work institution. ☐

The Institutes of Technology
A National Dream

Dr. C.N.R. Rao, Director, Indian Institute of Science, Bangalore, delivered the convocation address at the Indian Institute of Technology, Madras on 25 July, 1986.

Reproduced below are excerpts from Dr. Rao's address.

The Indian Institutes of Technology have been involved in many programmes related to higher technical education as well as research and development, but in most peoples' minds they are synonymous with high quality undergraduate engineering education. The aspiration of a vast majority of young people is to join in IIT for higher studies and most citizens seem to know about IITs. IITs have come of age and it is probably time for us to re-examine their goals and objectives and reaffirm the commitment of these fine institutions to the nation.

Convocation

IIT Graduates—A National Treasure

I have taught for several years in an IIT. I have also taught in the U.S., at Oxford and at Cambridge, but I have yet to find a better class of undergraduate students than in our IITs. I have found it most refreshing to teach IIT undergraduates. They have a fresh outlook; they are curious and enthusiastic. After the first one or two years of study, a large number of students at IITs become so good in their fundamentals that it often becomes difficult to teach them in higher classes. We teachers have always to be on our guard when we face the bright students in IITs. This cream of the country is badly needed now to help in natoinal development. For various reasons, the best of our undergraduates go abroad for studies or take up professions related to management and marketing rather than engineering design and development. At this crucial juncture of our national development, the IIT graduates cannot only contribute in a major fashion but also significantly transform the country. If only a high percentage of our IIT graduates had continued to work in this country soon after their graduation (or later after post-graduate training here or elsewhere). I believe that we would have gone much farther in our S & T efforts and in national development.

We cannot afford to lose out IIT graduates any more. Everything should be done to keep them here and nurture them. We have to make engineering and scientific profession more attractive and provide professional challenges. Bureaucratic impediments should be removed in order to see that our young people find it enjoyable to work here. Since I am considering myself as belonging to a generation that will leave the scene before the turn of the century, I am seriously concerned about the state of Indian science and technology at that time. Today's graduates will be important managers of society by the turn of the century and the IIT graduates will be carrying out most important tasks at that time, if they decide to do so. It is my pleas to our IIT students and all other concerned, to see that this treasure of our country is protected and utilised properly.

The IIT Scenario

Today, the Indian Institutes of Technology can rightfully claim the prime place in undergraduate engineering education in the country. The quality of engineering graduates produced by IITs has undoubtedly been superb; they are at least as good as those coming out of the very best universities in the world. Although there have been some comments here and there that other engineering colleges in the country are producing undergraduates with similar or equivalent training as in IITs, I am personally certain that it is difficult, nay impossible, to match the quality of students or training at IITs. Moreover, IIT graduates having a better sciences base, are more suited for research, design and evelopment (R, D & D). I, however, get the feeling that there may be less flexibility in the undergraduate curriculum in recent years. We have to make efforts to ensure that the undergraduate students have a sufficient number of sound alternatives and are able to take the right mix of courses suited to their needs and interests. For this purpose, there may be need to introduce new types of courses to keep abreast of the new frontiers and to answer national needs.

IITs have provided leadership in

postgraduate education as well, but for several reasons, the very best undergraduates are not available for the postgraduate programmes in IITs. Undergraduates from IITs do not generally pursue postgraduate programmes in IITs, but make use of opportunities elsewhere. We have to make efforts to attract good students for postgraduate engineering programme in IITs and ensure that sufficient opportunities are available to our postgraduates. It would be desirable if a master's degree in engineering is made the required qualification for some of the specialised R,D&D positions. Postgraduate engineering education also has to provide greater opportunities for specialisation in some of the emerging areas of science and technology. The ratio of undergraduate to postgraduate students in IITs has been talked about for years. It was hopefully going to be 1:1. I do not feel that this will happen rightaway because of various pressures. We have not only to create demand for our postgraduate students but also to provide greater opportunities for undergraduates trained elsewhere who may not have been exposed to better facilities during their undergraduate studies.

Faculty members in IITs and other engineering institutions used to carry out much of their research and development work by making use of students at the Master's level. This activity has had a set-back because of the shortened duration of the master's programme. The present duration of 1½ years appears to be a compromise between the course-based Master's programme in the US and our old M.Tech. programme. We have to examine whether it is not possibe to have M. Tech. degrees with thesis and non-thesis options.

Today, Science and Technology are progressing very rapidly. The "rate of change of acceleration" is so great that it is becoming difficult to adjust oneself to the situation. In view of this explosive growth of scientific knowledge, we may have to change our strategies in imparting instruction to our undergraduate and postgraduate students. This would require greater flexibility in our curricula, but more importantly, a change in our attitude to devise better and newer programmes of study in order to attract talented students at all levels.

IITs, unlike other engineering institutions, have always tried to give sufficient importance to science. Some of the scientists and science departments in IITs have become well known and have established high scientific traditions. In fact, IITs should be truly called Indian Institutes of Science and Technology.

IITs have contributed to research and development considerably. Yet, there is much scope for improvement. Being academic institutions, innovative research and design work must get greater importance, the routine and the mundane being left to the lesser institutions. In order to provide incentive for development and design work, one could even consider a new type of postgraduate or doctorate degree. We cannot forget that advanced research in modern science requires high-class technological support just as modern technological effort requires advanced science. This interdependence has to be adequately recognised in supporting IITs. IITs are undoubtedly most ideally suited to foster advanced research in both modern science and technology.

IITs as Think Tanks

IITs were expected to be not just replicas of other institutions; they were to be the brain-trusts of the country in science and technology. IITs were expected to be think tanks providing knowledge and advice related to the frontiers of science and technology. While many groups and individuals in IITs have contributed to newer developments in the country, the institutions have not established themselves as think tanks in science and technology. We

UNIVERSITY NEWS

A Special Number on
DISTANCE EDUCATION

8 November 1986 issue of University News will be a Special Number *to mark the National Conference on Distance Education being organised* on the occasion of the 61st Annual Meeting of the Association of Indian Universities at Gujarat University, Ahmedabad from 9-11 November, 1986. Contributions in the form of articles/reports/reviews are solicited on any one of the following aspects of Distance Education :

Concepts of Distance Education; Forms of Distance Education; Course Designing and Preparation; Role of Media in Distance Education; Economics of Distance Education; Student Support Services; Evaluation Methodology; and Case Studies, etc.

Articles of 2000-2500 words should be typewritten on one side of quarto sized paper in double spacing. Only original articles that have not been published elsewhere need be submitted. Contributions should reach the Editor latest by 30 September, 1986.

have to do everything possible to see that our departments in IITs become not only pedagogical centres in their areas of specialization and carry out work in frontier areas of research, but also participate in making educated forecasts regarding the growth of science and technology as well as industrial development. Technology forecasting and assessment are very crucial for national developmnt. The entire success of Japan industrial development can be traced to proper perspective planning and decision making based on thorough technology assessment and forecasting. They have excellent organisations for this purpose, both inside and outside government. Such forecasting and assessment can only be done by specialists in different areas of science and technology who can produce detailed reports and papers based on detailed studies of the national and the international situation. I believe that IITs could be of great help in performing this important task which is so closely related to national development. Economic planning related to industries as well as science and technology will have to be based on such reports hereafter. Otherwise, mere economic planning without proper science and technology inputs may not be purposeful.

The technology forecasting activity that I have mentioned is by no means to belittle the importance of consultancy work and sponsored research being carried out in IITs. The only point that I would mention with regard to the latter is that consultancy and sponsored research should not distort our goals and programmes in higher technical education and should in no way affect the pursuit of excellence that IITs stand for.

Professional Challenges

One may ask what are the professional challenges ahead of us. I can cite many. Being a developing country, India has many problems in science and technology that need to be tackled in order to provide the minimum satisfaction to the common man. At the same time, we have to tackle problems in the very frontiers of science and technology to keep abreast of the advanced nations. There are also some areas of S & T where we need to be leaders in order to exploit our own natural resources and special advantages that we may have in this country (e.g. solar energy). In all these efforts, we need the very best scientists and engineers in large numbers. Even a seemingly simple problem such as providing clean drinking water to villages, improving methods of communication or removing illiteracy, requires large technological inputs involving both innovation and expertise. More imporantly, there are many new directions which we will have to pursue in the country in order to be technologically competitive. Let me briefly give one or two examples.

One of the most glaring problems that we are facing today is that related to materials—materials of various kinds that are required for common use as well as for advanced technology. Even common materials such as wood are not available freely any more. We have to find substitutes for such materials. At the same time, we have to work on materials for advanced technology. For example, advanced technology ceramics is an area where we have not made a beginning in this country. We need materials for turbine blades, aircraft and for electronics. We can readily list the vast number of materials required in the next few years. Unless we have these materials, we cannot possibly make any progress in society or in industry.

Another area that is noteworthy is photonics which could, in principle, replace electronics, at least partly if not completely, in the near future. We have to make a beginning in this area now if we want to compete meaningfully when technological benefits become possible in this area. Right now, even advanced countries are just making a beginning in photonics.

The area of parallel computing offers many exciting possibilities. A majority of computers in use today follow sequential computing principles. It is now realised that computers based on these principles are reaching saturation levels in performance. Technical opinion now appears to be that present computer speeds in sequential machines may increase at best by a factor of about 10. On the other hand, parallel computing offers vast increases in speeds, not subject to the limitations of sequential computers. We have an extraordinary opportunity to develop parallel computing technology. Such computers can be readily built using available microprocessor elements, but the appropriate software (both system and application) for parallel computing is yet to be developed. In view of our vast resources of manpower, specially in IITs, we could initiate projects in this area which can put India among the world leaders in the next 5-10 years. Parallel computing is almost certainly coming in a big way. Since we have not made large investments in sequential computers and related software, it may indeed be possible for us to leapfrog into the next generation of computers.

One of the distressing features of Indian scientific effort in recent years has been the slow disappearance of experimental physical scientists and engineers. There is only a small proportion of scientists who design experiments and carry out meaningful experimental measurements. I realise that it is extremely difficult to do experimental research in India, but without it we will have no future in science and technology.

Basically, much of our efforts in science and technology will depend on our experimental skill and innovative abilities. We should do everything possible to have the required infrastructure facilities and equipment in our institutions so that experimental research and development come to the fore. It is particularly important that this happens in IITs. We should not forget that even a small piece of work carried out with a new type of instrument fabricated locally, however crude it may be, is likely to pay greater dividends.

Unfortunately, we have been very weak in instrumentation. Instrumentation capability has to be promoted effectively in the country for carrying out high quality experimental research in engineering and sciences and also for developing instruments for use in industry, hospitals, schools and colleges. At present, we are extremely poor in designing, fabricating and productionising sophisticated instruments for research and for industry. Even where some instruments have been developed by individuals, there is no simple mechanism available for transferring the know-how to industry. Instrumentation industry itself has not properly developed and people have found it easier to import instruments of all varieties paying high prices. We have to treat instrumentation as a prioirty need and take it up with full force in institutions such as IITs. Instruments routinely required for schools, colleges and hospitals would alone support a major industry with guaranteed market. The only requirements we have to be careful about are good quality control and maintenance facilities.

Concluding Remarks

I have been talking much too long about IITs and their role. I am sure that much of what I have said is of common knowledge but still I had to say this because of the intense feeling I have for these important national institutions which have an indispensable role to play in national development. If we do not often remind ourselves of the role of these institutions, we may tend to forget their importance and get used to the idea of carrying out routine teaching and research. But this cannot be allowed to happen. It is essential that we keep asking ourselves how well we have done. Have we provided the leadership in higher technical education as well as R & D that was expected ? Are our programmes keeping in tune with national needs and with the frontiers of science and technology ? Have we tried to rise above the ordinary? Are we the best ? After all, these institutions were started for the pursuit of excellence. These were to become the temples of learning where it was not just information or knowledge that was imparted, but wisdom.

IITs have been part of my dream for prosperous and technologically advanced India. IITs have also been a national dream and part of the dream of young boys and girls in this country and of every aspiring citizen. □

ASSOCIATION OF INDIAN UNIVERSITIES

AIU House, 16 Kotla Marg, New Delhi-110002

Applications from Indian citizens are invited for the following posts in the prescribed forms available on payment of Rs. 2/- from the office of the Association :

1. **Dy. Secretary (Admn.) : Scale of Pay Rs. 1500-2000 : One**

Post Graduate with 1st class or high second class degree with at least ten years experience in an administrative post at executive level in University/Government Department/Autonomous Organisation. Persons having Diploma/Degree in Personnel Management and knowledge of administrative rules and understanding of issues in university system will be preferred.

2. **Research Officer : Scale of Pay Rs. 1100-1600 : One**

Essential : A first class postgraduate in Sciences, Mathematics or Statistics with at least five years experience of research in the area of examinations in Colleges/Universities. **Desirable** : Good knowledge of computer applications with experience in computerisation of examination work.

3. **Section Officer : Scale of Pay Rs. 700-1300 : One**

Graduate with at least seven years experience as sales executive in a publishing house of repute. Candidates having Master's Degree/Diploma in Sales Management/Publishing/Personnel Management and knowledge of accounts will be preferred.

Persons already working in Universities/Colleges can be considered for deputation terms.

All posts carry dearness and other allowances generally at the Central Govt. rates. Relaxation in any of the requirements may be made in exceptional cases. The Association reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant. SC/ST/Ex-servicemen will be given preference. Canvassing in any form by or on behalf of a candidate will be a disqualification.

Applications complete in all respects should reach the office by **30th September 1986**. Persons already in service may apply through proper channel. Applications received after the last date or without complete information may not be entertained.

Chitra Blood Bags

Sree Chitra Thirunal Institute for Medical Sciences and Technology, Trivandrum, has developed the Chitra Blood Bags which will usher in a big transformation of blood banking services in the country. At present the blood banks in the country use glass bottles for collecting and storing blood which almost makes it impossible to fraction blood. Manual cleaning of the bottles also leaves much to be desired from the hygiene point of view. The disposable bags developed at the Institute would facilitate fractioning of blood into components like plasma and platelets. It will also avoid wastage of blood as if a patient needed only plasma or platelets, he/she will not have to be administered the whole blood. Another advantage offered by the plastic bags is that the blood could be stored for longer periods. Dr. M.S. Valiathan. the Director of the Institute said the disposable bags were essential for organising a national blood transfusion service, as envisaged by the Centre during the Seventh Plan.

The blood bags will be manufactured by a joint sector unit promoted by the Kerala Government, the National Research Development Corporation (NRDC) and a private entrepreneur. The unit will have an intial capacity to manufacture 5,00,000 blood bags annually with provision to double the output in due course.

The other major research programmes taken up by the Institute—the 'Chitra Oxygenator' and the 'Chitra Tilting Disc Heart Valve' have also drawn closer to commercialisation.

Courses in Distance Education

The Indira Gandhi National Open University proposes to start diploma and degree courses in distance education and management from the 1987 academic session. While diploma courses in rural development and computer science will start from the later part of 1987, the undergraduate courses are expected to be introduced from early 1988. A diploma course in creative writing and special courses to cater to the needs of women and for teacher orientation are also being planned.

The university courses, it is reported, would be structured on a model pattern with the facilities for accumulation of credits. Provision would also be made for transfer of credits from the formal to the non-formal system and vice-versa. Detailed guidelines are being framed in this respect.

Open Admission Colleges

The Andhra Pradesh Government is contemplating to start Open Admission Colleges with audio and video aids from the next academic session. According to the State Education Minister, Mr. G. Muddu Krishnama Naidu, Andhra Pradesh would be the first State in the country to launch this modern instructional technology, consistent with the advancement in technology, and as an innovative measure in the field of higher education. An audio-visual cell has been created and efforts are under way to make arrangements with the SIET and CIEFL institutions to get the video lessons prepared.

About hundred such colleges are proposed to be started in the first instance.

Science & Technology Park for Roorkee

A Workshop on 'Science and Technology Entrepreneur's Park (STEP) was held at the University of Roorkee on August 8-9, 1986. The workshop which was attended by representatives from Industries Department of U.P. Government, Department of Science and Technology, Government of India, University Grants Commission, U.P. Council of Science & Technology, U.P. Electronics Corporation, U.P. Financial Corporation, U.P. State Industrial Development Corporation, State Bank of India, the Union Bank of India, and entrepreneurs recommended that a Science and Technology Entrepreneur's Park be established at Roorkee under sponsorship of University of Roorkee. A Steering Committee under the Chairmanship of Sri C.P. Joshi, Chairman, U.P. Electronics Corporation, Lucknow has been constituted to help and cooperate in establishment of STEP.

DST Approves Nagarjuna Varsity Project

Under its "Promotion of Scientific Interest in Youth" scheme, the Department of Science and Technology (DST), Govt. of India, has sanctioned a sum of Rs. 84,000 to the Nagarjuna University for implementation of the research project entitled "Assessment of Water Pollution in the River Krishna and Recycling of Algae from the Polluted Sources". The objectives of the research project are (i) to observe the algal indices of fresh water pollution in both running and standing water; and (ii) to monitor quality of water and to study the passability of the algae laden water and algae free water of irrigant for food crops.

The project has been undertaken by Dr. J. Chandra Sekhar Rao of the Botany Department of the University and is likely to be completed in about two years time.

Sanskrit Varsities

The Government proposes to set up two deemed Sanskrit Universities in the country to promote study of the language. This is reported to have been stated by the Union Minister of State for Education and Culture, Mrs. Krishna Sahi, in New Delhi recently.

New Division in CIPOD

The Board of School of International Studies at Jawaharlal Nehru University has decided to create a new division for political geography in the Centre for International Politics, Organisation and Disarmament.

HAU Offers Research Facilities

Haryana Agricultural University (HAU) has acquired sophisticated equipments like Electron Microscope, X-Ray Defractometer, Amino Acid Analyser, N.M.R., etc., for use of its research scholars. Neighbouring universities are welcome to make use of these facilities.

News from Agril. Varsities

Fodder Production Workshop at PAU

Dr. R.S. Grewal, Director of Animal Husbandry, Punjab said that the success of dairy farming mainly depended on keeping high-producing milch animals, feeding them with ample nutritious fodder and providing them with proper health cover. Dr. Grewal was inaugurating a two-day Workshop on Rabi Fodder Production and Conservation held at Punjab Agricultural University (PAU) . He said that the profession of dairy farming should be commercialised so that it could be more profitable for the farmers. He emphasised that special campaign should be launched to educate the farmers about scientific cultivation of fodders and their conservation and urged the farm scientists to devise suitable technology to boost the production of quality seeds of various fodder crops. Dr. Grewal also exhorted the PAU Engineers to develop fodder harvesting and milking machines to save time and labour.

Dr Khem Singh Gill, Director of Research, PAU, said that LL9 composite 3 variety of lucerne developed at the PAU has been released at the national level. CL-9 variety of oats and BL-22 variety of berseem have also shown excellent results.

Dr. K.S. Nandpuri, Director of Extension Education of PAU said that specialized training courses for the field staff of the Department of Animal Husbandry in hay making and silage making were being organized. He also said that a bulletin on Fodder Seed Production would soon be made available.

New Apple Variety

Dr. Y.S. Parmar University of Horticulture and Forestry, Solan, has developed a new variety of apple. Named as "Mollies Delicious", the new variety is recommended for cultivation on altitudes between 1000 and 2000 m. It is an early ripening variety with a yield of about 25000 kg in an acre. It is popular in Himachal Pradesh, Jammu & Kashmir and the hills of Uttar Pradesh and promises enlargement of the apple area coverage in these States.

This new variety will also enable mid hill regions of Southern and Eastern States to grow apples on commercial scale.

News from Abroad

British Varsities Contribute to Research and Development

There are nearly 50 universities in Britain, between them accounting for around 35,000 specific research projects. Some may seem academic and obscure, others attract headlines and win Nobel Prizes. Together they provide a research base for education and industry.

Science and education meet in the universities, Britain's Department of Education and Science pays most of the bills, either through the University Grants Committee (UGC) or through the various research councils such as the Science and Engineering Research Council (SERC) and the Medical Research Council (MRC). The UGC covers the basic costs of staffing and maintaining the universities plus some of the research. The research councils allocate grants for specific projects. At present they are supporting nearly 7000 university projects worth a total of £360 million nearly half of the total of all research grants to the universities. The remainder comes from other government sources, such as the Department of Trade and Industry, the Ministry of Defence and the Department of the Environment and from private industry.

The UGC supports the principle that "courses of higher education should be available for all those who are able to benefit from them and wish to do so". That led in the 1960s—a period of both economic and population growth—to a rapid expansion of the universities facilitated by the Robbins Committee Report. But with the present decreasing students number and with the effects of world wide recession, some difficult decisions are having to be made.

There is an increasing emphasis on science and technology and it is the UGC's stated intention not to spread its resources too thinly. That means strengthening or creating sectors of excellence where there is particular expertise in one area, rather than supporting the same subjects on every campus. It also means strengthening ties with industry both to secure funding for new research and to exploit existing developments in the commercial world.

Traditionally, Britain has excelled in basic research. The development and application of research has often been left to others. This is no longer the case and most universities are now acutely aware of the need to cash in on the work done in their laboratories and their expertise that builds up around them. The way this is done, however, varies widely. Some get the technology transfer agencies, the British Technology Group (BTG) to do the necessary patent work and license the product of technique, others will do the work themselves. Many universities have set up their own companies to develop and even market their technologies.

Another approach many universities are making to industry is the setting up of Science Parks. Attractively landscaped sites near universities are offering accommodation to a wide range of science based companies. This does not only end up in making universities estate agents and most exciting projects involve heavy investment by the universities themselves.

The clients range from large companies who want to build their specially designed research laboratories near the campus, to ready-made units of a few rooms in which enterprising academics can set up business. In practice, about a third seem to be outsiders establishing their first contacts with the university. a third are set up by university members to exploit their own research, and the remainder are owned by the university itself and dedicated to technology transfer.

The visitors gain access to university libraries, conference facilities and the chance of collaboration. The universities get rent, research contracts and royalties. Some even get teaching help. At Brunel University, west of London, a company called Bowford Engineering is to start course for engineering students on welding technology.

We Congratulate . . .

(1) Prof. P.N. Srivastava, Vice-Chancellor, Jawaharlal Nehru University, who has been elected as member of the Administrative Board of the International Association of Universities (IAU) at Los Angeles.

(2) Smt. Kamalini Bhansali who has been appointed as Vice-Chancellor of the S.N.D.T. Women's University, Bombay.

(3) Shri K.P. Yajnik who has been appointed as Vice-Chancellor of the North Gujarat University, Patan.

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATIONS

Applications are invited from College/University teachers for admission to Correspondence Courses in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by a crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (Re.1/-) should reach the undersigned. Last date for receipt of applications is **15th September** for non-sponsored and **26th September, 1986** for sponsored candidates.

Project Director (Examinations)
Association of Indian Universities
AIU House, 16 Kotla Marg
New Delhi-110002

National Conference on Distance Education

The Association of Indian Universities will organise in collaboration with the Indira Gandhi National Open University and Gujarat University a National Conference on Distance Education on 9th and 10th November, 1986.

Despite a phenomenal increase in educational facilities since independence, the Indian education system is not able to cope with the rising number of students who aspire for admission every year. Higher education system is confronted with enormous shortages of teachers, buildings and equipment. These shortages are likely to mount further because of our inability to raise matching resources. This is true not only of India but of all the countries the world over.

Distance education is regarded as an effective alternative to the formal system and most of the countries are making increasing use of the method of teaching at a distance. This method denotes the application of multi-media approach to the entire teaching-learning process. It is thought that distance education will provide solutions to the educational problems of spread of knowledge and skills as well as in raising the general level of education of the masses. Introduction of correspondence courses by several universities is to be seen in this context. Establishment of the Indira Gandhi National Open University and the fact that many State Governments have either established open universities or are planning to do so is only pointer to the popularity and acceptability of the concept of distance education. The National Conference on Distance Education is being organised in recognition of the need for formulating appropriate policies and strategies to lend meaning and substance to the concept of distance education. The focus of the Conference will be on the following themes :

(a) Concept of distance education
(b) Forms of distance education
(c) Course designing and preparation
(d) Role of media in distance education
(e) Financing of distance education
(f) Student support services
(g) Evaluation methodology

Programme

The Conference will be conducted under four panels as per following programme. It will conclude with a plenary session.

November 9, 1986	
Session I (Inaugural)	10.30 a.m. - 11.30 a.m.
Session II	11.45 a.m. - 1.15 p.m.
Session III	2.30 p.m. - 5 00 p.m.
November 10, 1986	
Session IV (Plenary)	10.00 a.m. - 12.00 noon

Participation

Delegates from various universities and other institutions of distance education (including correspondence courses) are invited to participate. Governmental and private organisations in the fields of electronics, space information, data processing and satellite educational programmes may also participate Such participation can be either in terms of presenting a paper or demonstration of educational technologies, aids and other learning devices developed in India and abroad.

Exhibition

It is proposed to hold an exhibition of books, journals, equipment for Video, TV and Computer aided instruction and demonstrations of new technologies during the Conference. Entries are invited for the exhibition.

Venue

The venue of the Conference and the exhibition will be the Gujarat University, Ahmedabad.

Language

The official language of the Conference will be English.

Further details can be had from the conveners.

Conveners

B.N. Koul
Professor of Distance Education
Indira Gandhi National Open University
K-76, Hauz Khas
New Delhi - 110016

M.M. Ansari
Project Director (Research)
Association of Indian Universities
AIU House
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New Delhi - 110002

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
September, 13-15, 1986	National Solar Engery Convention 1986	To evaluate the current status and trends in solar energy studies; to evolve methodology for collaboration among researchers and industrialists; and to identify technologies for harnessing renewable energy sources.	School of Environment and Natural Resources, Madurai Kamaraj University, Madurai	Prof. T. M. Haridasan, Organising Secretary, National Solar Energy Convention—1986 School of Energy, Environment and National Resources, Madurai Kamaraj University, Madurai
September, 14-16, 1986	National Seminar on Futurology	To identify future events, new ideas and approaches for growth and socio-economic development.	Kanoria Mahila Mahavidyalaya, Jaipur in collaboration with the Department of Science and Technology, Govt. of India	Dr. Shanta Mehtani, Head, Department of Philosophy, Kanoria Mahila Mahavidyalaya, Jaipur.
September, 19-20, 1986	National Policy on University Libraries	To have exchange of views among the University Librarians on various facets of the seminar	Osmania University Library, Hyderabad.	Shri N.B. Inamdar, Seminar Director & Librarian, Osmania University, Hyderabad.
October 1-4, 1986	Third National Conference on Women's Studies	To promote thedevelopment of Women's Studies in India by providing a forum for interaction amongst individuals, institutions and organisations engaged in teaching, research or action for women's development.	*Indian Association for* Women's Studies, New Delhi in collaboration with Panjab University, Chandigarh	Dr. Lucy Jacob, General Secretary, IAWS, L-3-D, University Campus, Jaipur
October 5-7 1986	**International Seminar on Gandhi and Contemporary Ideologies regarding Freedom, Peace and Equality.**	**To evaluate the Contemporary Ideologies regarding Freedom, Peace and Equality in the context of Gandhiji's Contribution.**	**Institute of Gandhian Thought and Peace Studies, Allahabad University in collaboration with the Indian Society for Gandhian Studies.**	**Dr. J.S. Mathur, Director and Dr. O.N. Srivastava, Associate Director, Gandhi Bhawan, Allahabad University, Allahabad.**
November 9-10, 1986	**National Conference on Distance Education**	**Topics proposed to be covered are: (i) Concept of Distance Education; (ii) Forms of Distance Education; (iii) Course Designing and Preparations; (iv) Role of Media in Distance Education; (v) Financing of Distance Education; (vi) Student Support Services; (vii) Evaluation Methodology.**	**Association of Indian Universities, New Delhi; Indira Gandhi National Open University, New Delhi; and Gujarat University, Ahmedabad**	**Prof. B. N. Koul, Indira Gandhi National Open University, K-76, Hauz Khas, New Delhi.** **Mr. M.M. Ansari, Project Director (Research), Association of Indian Universities, 16 Kotla Marg, New Delhi**
December 15-17, 1986	Indian Geotechnical Conference—1986	Designed to seek a consensus on questions of current significance in geotechnical engineering relevant to the Indian context.	Indian Geotechnical Society—Delhi Chapter	Prof. Shashi K. Gulhati, Organising Secretary, IGC-86, Civil Engineering Department, Indian Institute of Technology, New Delhi.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-30 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Psychology

1. Bakshi, Mukta. *A study of alienation of university research scholars in relation to their personality, intelligence, aptitudes and achievement motivation.* Panjab. Dr. Jitendra Mohan.

2. Manjeet Kaur. *A study of adjustment of university research scholars in relation to their personality, intelligence, values and socio-economic status.* Panjab. Dr. Jitendra Mohan.

3. Khanna, Nandita. *A study of aging effects of cognitive and personality patterns.* Panjab. Dr. Anuradha Bhandari.

4. Sethi, Shabina. *An investigation into the relationship between creativity and psycho-pathology at different levels of intelligence.* Panjab. Dr. V.V. Upmanyu.

5. Vanaja, K.K. *Personality correlates of dietary pattern in terms of sattvik rajasik and tamasik guna.* Panjab. Dr. (Mrs.) Vidhu Mohan.

Political Science

1. Dehal, Kesar Singh. *Politics in an Indian Village : A study of interaction of caste, class and power in Village Delhan of Distt. Una of HP.* HP. Dr. Gopal Singh.

2. Jiley Singh. *Agrarian transformation and caste politics in Western Uttar Pradesh.* HP. Dr. Javeed Alam.

3. Kahan Singh. *Pressure groups in HP : A study in political development.* HP. Dr. Ranbir Sharma.

4. Kamal Manohar. *The Gujjar Tribe of HP : A study of national integration.* HP. Dr. Ranbir Sharma.

5. Miglani, Diwan Chand. *Socio-economic basis of rural power structure in Haryana : A study of Village Amupur in Distt. Karnal.* HP. Dr. Gopal Singh.

6. Vaidya, Manjusha. *Elections and political development : A study of HP.* HP. Dr. Ranbir Sharma.

Economics

1. Abdulkhader, K.A. *Concessional agricultural finance with respect to accessibility and utilisation by small and marginal farmers of Mulappuram District.* Kerala. Dr. M.A. Oommen.

2. Gupta, Vimla. *Sekhari sakh tatha samajik nyaya : Dakshin-Pashchim Madhya Pradesh ke vishesh sandarbh mein.* Devi Ahilya. Dr. S.S. Pawar.

3. Jalaja, I.K. *Amerthya Sen's contribution to economics : A critique.* Kerala. Dr. S. Umadevi.

4. Jaspal Singh. *Development of tubewell irrigation in Punjab.* Panjab. Dr. H.S. Shergill.

5. Jose Sebastian. *Tax performance of Kerala.* Kerala. Dr. M. A. Oommen.

6. Koshy, P. Koshy. *Industrial sickness in Kerala : Factors and consequences.* Kerala. Dr. M.A. Oommen.

7. Ravi, K. *Plantation labour in Kerala.* Kerala. Dr. P.S. George.

8. Sheela, S. Suja Swarna. *Area planning and development credit in Kerala : A critical appraisal.* Kerala. Dr. G. Karunakaran Pillai.

Public Administration

1. Ovasdi, Jagdish Mitter. *Divisional Railway Administration in India : A case study of Northern Railway.* Panjab. Dr. S.L. Goel.

2. Roy, Pratima. *Hospital services administration in a Metropolitan City : A case study of Safdarjang Hospital, New Delhi.* Panjab. Dr. Vijay Rattan.

3. Sajjan Singh. *Changing dimensions of district administration : A comparative study of Ambala and Hissar District.* Panjab. Dr. Sudesh Kumar Sharma.

Education

1. Baral, Sudarsan. *The patterns of exceptionality across domains in learning disabled children.* Panjab. Prof. (Miss) Sudesh Gakhar.

2. Chinara, Benudhar. *Effect of strategies for inculcation of democratic values among adolescents in relation to introversion-extraversion and value-related behavioural types.* Panjab. Dr. Anand Bhushan.

3. Dhadwal, Neena. *A study of personality characteristics, intelligence, achievement motivation and adjustment of the children in destitute homes.* Panjab. Dr. Harish Sharma.

4. Dhillon, Daljit Kaur. *Assessment of physical fitness of high school girls of Punjab.* Panjab. Dr. S. Gurbaksh Singh.

5. Mahiyaneh, Abdol Hamid. *Progress of elementary education : Qualitative and quantitative in Fars Province of Iran and its management as perceived by teachers and administrators.* Panjab. Prof. S.S. Mathur.

6. Nasib Singh. *Comparative study of psychological characteristics of athletes in team games and individual events.* Panjab. Prof. (Mrs.) S. Bambah and Dr. S. Gurbaksh Singh.

7. Saore, Neelima Ravindra. *Effect of mastery over the theory and planning skills on the performance of some teaching skills of the teacher trainee.* Shivaji. Dr. A.N. Joshi.

Management

1. Dhawale, S.K. *Marketing factors affecting consumption of chemical fertilisers.* Devi Ahilya. Dr. R.D. Agrawal.

HUMANITIES

Language and Literature

English

1. Bhanot, Kanta. *Dramatic art of Shakespeare and Natya-Sastra.* Panjab. Dr. N.K. Oberoi.

2. Parminder Singh. *Adhunik Panjabi kavita vich saundarya da sankalp.* Panjab. Dr. Kesar Singh Kesar.

Punjabi

1. Gurjeet Kaur. *Nanak Singh de navalan vich waprian mautan da vishleshnatmak adhyayan.* Panjab. Dr. Hardev Singh Sachar.

2. Peljinder Singh. *Jaswant Singh Kanwal's art of novel : A study.* Panjab. Dr. (Mrs.) Kulwant Kaur Kohli.

Hindi

1. Bhardwaj, Prem Swaroop. *Himachali lok katha sahitya ka manovaigyanik adhyayan.* HP. Dr. Gautam Sharma 'Vyathith'.

2. Gupta, Prabha. *Kabir ke ulatbasiyon ka vishleshanatmak adhyayan.* HP. Dr. Rajdeo Singh.

3. Khatta, Ravi Chander. *Swatantrayottar Hindi kavita mein samajik chetna ke vividh ayam : San 1950 se 1970 tak.* HP. Dr. Sriram Sharma.

4. Mehta, Gulab Singh. *Bahya siraji lok sahitya ka samajik sanskritik adhyayan.* HP. Dr. Jagat Pal Sharma.

5. Mehta, Ram Nath. *Hindi ke ritigranthon ka kavyashastriya vivechan.* HP. Dr. (Mrs.) Krishna Raina.

6. Nafde, Rajeev. *Satven dashak ke paschat Hindi kahani mein samaj chintan.* HS Gour. Dr. Suresh Acharya.

7. Patil, P.S. *Devesh Thakur aur unka upanyas sahitya.* Shivaji. Dr. V.K. More.

8. Priya Ambika. *Sathottari Hindi upanyason mein vyangya.* HP. Dr. Chaman Lal Gupta.

9. Sharma, L.R. *Upanyaskar Devkinandan Khatri.* HP. Dr. Rajdeo Singh.

10. Sharma, Shanti Prakash. *Hindi ke pragatisheel upanyason mein nari mukti kee samasya.* HP. Dr. Lallan Rai.

11. Sharma, Veena. *Bhairav Prasad Gupta ke upanyason mein samajik rajnaitik chetna.* HP. Dr. Sriram Sharma.

12. Shekhawat, Narendra Singh. *Swadheenottar pragativadi katha sahitya : Ek anusheelan.* Devi Ahilya. Dr. Vilas Gupta.

13. Sudarshan Kumar. *Swatantrayottar Hindi natakon mein nari, 1970 tak.* HP. Dr. Sriram Sharma.

Marathi

1. Wasamkar, Vishnu Dada. *Marathiteel kalavadi sameeksha.* Shivaji. Dr. G.M. Pawar.

Malayalam

1. Alexander, P.K. *Vision of life and poetry in the works of Mahakavi Ulloor with special reference to Karnabhooshanam Pingala and Bhakthideepika.* Kerala. Dr. T.G. Ramachandran Pillai.

History

1. Mainra, Sanjeev. *Snake worship in Himachal Pradesh : From earliest times to present.* Panjab. Dr. J.K. Sharma.

2. Naiknavare, Vaijayanti Jaywant. *The history of Leftist Movement in Satara District.* Shivaji. Dr. B.R. Kambale.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Library Science

1. Kamaiah, Pe.ipydi. *Personnel problems in library management : A study of the university libraries in Andhra Pradesh, India.* Karnatak.

Psychology

1. Kochhar, Saran Swarup. *Defence mechanisms and personality dimensions.* Nagpur.

2. Panda, Namita. *Effects of cognitive style and adjunct question on learning from connected discourse.* Utkal.

3. Patra, Sarat Kumar. *Effects of stimulus variation and amygdalectomy on exploratory behaviour of Wistar rats.* Utkal.

4. Rao, Sudha. *Fear of success in college students : A study of its psycho-social correlates and modifiers.* Bangalore.

5. Tripathi, Amar Nath. *Home and personality determinants of intelligence and social competence of tribal and non tribal children.* Utkal.

6. Vijayalakshmi, Susaria. *Effect of peer counselling training on helping skills and certain psychological factors : An exploratory study.* Andhra.

Political Science

1. Gaikwad, S.B. *Political awareness mobilisation and change in Marathwada.* Nagpur.

2. Jatva, P.L. *Janata Party ka udbhav vikas evam bhavishya.* Vikram.

3. Kanwarjit Singh. *Perspectives on Sikh political philosophy and ethics.* Panjab.

4. Kshirsagar, Keshao Shriram. *Leadership of Narkesari Abhyankar : Elite conflict in mass politics.* Nagpur.

5. Moongi, Vijaya. *Bharat evam America ke adhyakshon kee karya pranali ka tulnatmak adhyayan.* Vikram.

6. Prabhat Kumar. *Bharat mein rajbhasha kee rajniti : Ek adhyayan.* Kanpur.

7. Saxena, Shashi. *Indo-Pak relations : A study with special reference to Kashmir Issue.* Kanpur.

8. Sharma, Girija. *Bharat Pak sambandh.* Vikram.

9. Shrivastava, Jagat Narayan. *Rai Bareilly mein jantantriya prakriya ka sanchalan evam chunav, March 1977 Sansadiya.* Kanpur.

10. Sinha, Debabrata. *Santhals of West Bengal : A study of tradition Vs. modernity in selected blocks of Bankura and Purulia District.* Rabindra Bharati.

11. Tiwari, Vinay Kumar. *Bharatiya rajniti paddhati mein vampanthi dalon ka sangathan.* Vikram.

Economics

1. Aggarwal, Rashmi. *Wage determination in Indian industries : A macroeconomic approach.* IIT, Delhi.

2. Atari, Sara. *The study of trend and regional variations. in area production and productivity of spice crops in M.P.* Vikram.

3. Hariharan, S.V. *A comparative cost programme : Extension and formulation of mathematical programming problem for the application of comparative cost theory.* Madurai.

4. Jain, Chandra. *Mandsaur Jile kee krishi mein urvarakon tatha unnat beejon ka prayog aur krishi joton ke akar se uska sambandh.* Vikram.

5. Kanavi, B.B. *Development finance and Life Insurance Corporation of India.* Gulbarga.

6. Massroor, Gholam Ali. *A micro study of development of agriculture in Kalmeshwar Block (Tehsil) during plan period,* 1974-1984. Nagpur.

7. Parulkar, Amol. *Madhya Pradesh mein laghu krishkon ka arthshastra, Ujjain vritt ke vishesh sandarbh mein.* Vikram.

Law

1. Varghese, Rajan K.E. *Wage policy in Indian industries* Cochin.

Public Administration

1. Akhter Hussain. *Emerging pattern of District administration in Bangladesh.* Panjab.

Military Science

1. Sengar, S.K. Singh. *Security sensitivity of North-Western Himalayas : Panjab Himalaya and Kumaun Himalaya,* 1858-1965. Kanpur.

Education

1. Chowdhary, Urmil. *A comparative study of the mental health of high achievers and low achievers of tenth class* (10+2 *pattern) in Delhi.* Delhi.

2. *Kanagasabapathy, R. A study of management of change in Madurai Kamaraj University.* Baroda.

3. Pandey, Devesh Datt. *A critical study of the residential education programme as laid down by U.P. Government in some Intermediate colleges.* Meerut.

4. Patel, Niketanbhai Kalidas. *A comparative study of educational ideals according to philosophy of Shri Aurobindo and Jainism.* Patel.

5. Pati, Sura Prasad. *An analysis of reading needs and interest of the adult neo-literates in the state of Orissa.* Utkal.

6. Sharma, Sarita. *A study of personality patterns and class room verbal behaviour of effective and ineffective school teachers.* HP.

7. Singh, Laishram Leiran. *Impact of non-formal education on the people of Manipur Valley.* Gauhati.

Commerce

1. Bansal, Lalit Kumar. *The role of non-bank financing institutions in the funding of large and medium industries in Panjab and Haryana.* Panjab.

2. Nageswara Rao, Silla Butchi. *Problems and prospects of dairy industry in Andhra Pradesh : A case study of Andhra Pradesh Dairy Development Cooperative Federation.* Andhra.

3. Porwal, J.C. *Ratlam Jile mein krishi vitt mein rashtriyakrit bank ka yogdan.* Vikram.

4. Pradhan, Radhe Shyam. *Working capital management in Nepalese public corporations.* Delhi.

Folklore

1. Ghosh, Sunanda. *A study of the Baramahi Songs of Assam and Bengal.* Gauhati.

Home Science

1. Vairagade, Ujwala Kishorrao. *A comparative study regarding utilisation and management of the selected resources by the employed and unemployed home makers in Aurangabad City.* Nagpur.

NETAJI INSTITUTE FOR ASIAN STUDIES

1 Woodburn Park, CALCUTTA-700 020

Advt. No. NI/EAS/86

Applications, typed in triplicate, giving full particulars as indicated below are invited for the undermentioned post so as to reach the Director of the Institute by **30th September, 1986.**

Professor—One post in the Deptt. of Ethnolinguistics (Scale Rs. 1500-60-1800-100-2000-125/2-2500 plus Dearness and other admissible allowances and pensionary benefits as per W.B. State Government Rules).

Minimum Qualification

(1) First class Master's Degree with high Second Class Honours or High Second Class Master's Degree with First Class Honours in the relevant subject.

(2) Ph.D. or equivalent research.

Desirable

(1) Experience of research supervision in the relevant field.

(2) Knowledge of the history and language of at least one South/Southeast Asian country, other than India.

Age Limit : Below fifty.

Particulars required

1. Name; 2. Mailing Address; 3. Date of birth (to be certified); 4. Academic Record (to be certified) giving year of passing, division and percentage of marks obtained, awards/distinctions, if any, for all public examinations; 5. Research Experience; 6. Research Guilding Experience; 7. Publications; 8. Present occupation and salary drawn; 9. A brief scheme of research proposed to be undertaken, if appointed.

N.B. (1) The choice of the Selection Committee may not be confined to those who formally apply. Prescribed qualifications and age limit may be waived in case of candidate found otherwise outstanding.

(2) In-service candidates should apply through proper channel.

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Sree Chitra Tirunal Institute for Medical Sciences & Technology

TRIVANDRUM-695 011

(An Institute of National Importance)

ADMISSION NOTICE

Post-doctoral Programmes : Academic Session commencing January, 1987

Qualified Indian nationals desirous of seeking admission to the various postdoctoral programmes commencing on January 1, 1987 are invited to apply in the prescribed form (non-transferable) which can be had of the Institute on request accompanied by a Bank Demand Draft of value of Rs. 10/- drawn in favour of SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY, TRIVANDRUM. The request should clearly state the name of the candidate, the programme to which admission is sought and the particulars of demand draft (number, Branch, Bank and date of issue).

Programmes Offered

3 year DM Cardiology, DM Neurology and M.Ch Cardiovascular thoracic surgery with 2 seats each.

3 year and 5 year (less 1 year) M. Ch Neurosurgery with 2 seats in all.

1 year Postdoctoral Certificate in (a) Cardiovascular & Neurosurgical Anaesthesia; and (b) Cardiovascular & Neuro Radiology with 2 seats each.

Minimum Educational Qualification for Entry

3 year DM Programme : MD (in General Medicine or Paediatrics)

Note :— Candidates with MD in Psychiatry with a minimum of six months residency posting in General Medicine and Neurology during the said course can apply for DM (Neurology).

3 year M.Ch programmes : MS in General Surgery.

5 year M. Ch (Neurosurgery) Programme :—MBBS degree and one year post registration house surgeoncy/residency in general surgery from a University/PG Institute/Teaching Hospital recognised by the Institute. Candidates selected under this provision will be entitled to one year exemption. **Candidates without one year experience in general surgery (as mentioned above) need not apply.**

Postdoctoral Certificate in Anaesthesiology/Radiology : MD/MS degree in Anaesthesiology/diagnostic Radiology.

Note :—All the aforesaid qualifications should have been obtained from an Indian University recognised by the Institute or from the National Board of examinations or from any other board recognised by the Institute.

Only those who satisfy the minimum qualifications prescribed are advised to apply for admission. Those who expect to qualify before the date of selection may forward their application by the closing date prescribed. However, they will not be called for the selection test unless evidence of having obtained the necessary qualification is produced latest by 12 Dec., 86. Candidates are not allowed to apply for more than one programme. Candidates with more than two failures in the University or equivalent examinations are not eligible for admission.

Admission to the programmes will be based on the candidates previous academic record and their performance in the selection tests to be held at the Institute from 19 December till 21 December 1986.

Reservation exists for SC/ST candidates as per rules of the Institute. Suitability for admission (against reserved seats) will be assessed independently of others. In case of non-availability of suitable SC/ST candidates the seats reserved will be diverted to general category.

Those selected will be paid fixed scholarship per month. The value will be Rs. 2000/- (MD/MS degree holders) and Rs. 1250/- for 5 year programme candidates during the first year.

Closing Dates :

Last date for issue of forms by post	:	20 October 1986
Last date for receipt of completed form at the Institute (along with non-refundable registration fee of Rs. 30/-).	:	31 October 1986

The applications received beyond the last dates are liable to be rejected.

The details of qualifications, selection procedure, reservation, sponsorship, scholarship and general conditions will be as given in the Prospectus for the year 1987.

DIRECTOR

CLASSIFIED ADVERTISEMENTS

ADMISSIONS

PUNJAB AGRICULTURAL UNIVERSITY

ADMISSION NOTICE

Applications are invited for admission to Ph.D. programme of the University in the following subjects for the academic session, 1986-87 commencing on 17th November, 1986.

College of Agriculture

Agronomy; Animal Science (Animal Breeding, Animal Nutrition, Animal Production Physiology, Livestock Production and Management); Extension Education; Entomology; Food Technology; Pomology; Vegetable Crops; Plant Breeding; Plant Pathology; Soil Sciences.

College of Basic Sciences and Humanities

Botany; Chemistry; Biochemistry; Economics; Sociology; Genetics; Statistics; Microbiology; Zoology; Business Administration.

College of Veterinary Science

Vety. Anatomy and Histology; Vety. Bacteriology and Virology; Vety. Obstetrics and Gynaecology; Vety. Surgery and Radiology; Vety. Medicine; Vety. Pharmacology; Vety. Parasitology; Vety. Pathology; Vety. Physiology.

College of Agricultural Engineering

Farm Power and Machinery; Soil and Water Engineering; Processing and Agricultural Structure; Electrical Engineering.

School of Energy Studies in Agriculture

Energy Science and Technology (in the field of Engineering, Microbiology, Biochemistry and Agricultural Economics.)

College of Home Science

Foods and Nutrition; Home Science Education and Extension.

Minimum Qualifications at a Glance

(i) **For Inservice Candidates** : A grade point average of 3.20 (4.00 basis) or 50% marks at Master's level in the respective field and a grade point average of 2.00 (4.00 basis) or 40% marks at graduation level.

Inservice candidates shall be an employee of PAU/Punjab Government/Union Territory of Chandigarh having atleast 5 years service with three years service after getting Master's degree on the last date of receipt of application.

For inservice candidates securing a minimum of 50 marks or above according to the table below rules (iii) of Rule 20 of Admission Rules will be eligible for admission.

For other than inservice candidates : A grade point average of 3.40 (4.00 basis) or 60% marks at Master's level in the respective field and a grade point average of 2.00 (4.00 basis) or 50% marks at graduation level.

Note : (i) Please see Prospectus for the academic year, 1986-87 for detailed qualifications, reservation and fellowships etc.

(ii) **Ph.D. in Agricultural Engineering** : The candidates seeking admission to Ph.D. programme will have to appear for a qualifying examination except the candidates for Energy Science and Technology and Electrical Engineering in the major field of specialization, Engineering Sciences and Mathematics at 9.30 A.M. in the College of Agricultural Engineering, PAU, Ludhiana in addition to the interview on the scheduled date at 3.00 P.M. They should come prepared for the qualifying examination and report to the Dean, College of Agricultural Engineering at **9.15 A.M. on 20-10-1986.**

Prospectus and Admission Forms : Available from the office of the Registrar, Punjab Agricultural University, Ludhiana on payment of Rs. 5/- per copy by cash at counter or by sending crossed Indian Postal Order(s) for Rs. 7/- payable to the Comptroller, Punjab Agricultural University at PAU Post Office, Ludhiana.

Last Date for Receipt of Applications : 30-9-1986.

NOTE : (ii) Only one application will be entertained for Ph.D. programme on the basis of first preference of subject mentioned in the application form in the order of interview fixed below. Incomplete and without testimonials applications are liable to be rejected.

Interviews : Interviews will be held on the following dates, time and place mentioned against the subject:

Subject	Date	Time	Place of interview
Agronomy, Extension Education, Entomology, Plant Pathology, Food Technology.	13-10-1986	9.00 A.M.	Pal Auditorium Complex PAU, Ludhiana.
Plant Breeding, Pomology Vegetable Crops, Animal Science and Soils.	14-10-1986	9.00 A.M.	-do-
Botany, Chemistry, Biochemistry, Business Administration.	15-10-1986	9.00 A.M.	-do-
Genetics, Zoology, Microbiology, Economics, Sociology, Statistics.	16-10-1986	9.00 A.M.	-do-
College of Home Science	20-10-1986	9.00 A.M.	-do-
College of Vety. Science	20-10-1986	10.00 A.M.	-do-
College of Agricultural Engg. and Energy Sc. and Technology.	20-10-1986	3.00 P.M.	-do-

NOTE :—NO SEPARATE INTERVIEW LETTER WILL BE ISSUED. NO. T.A./D.A. IS ADMISSIBLE.

REGISTRAR

APPOINTMENTS

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
WEST BENGAL

CANCELLATION OF

Advertisement No. 2/86-87 dated: 21-7-86

It is hereby notified to all concerned that the above advertisement No. 2/86-87 dated 21-7-86 appeared in **August 8, 1986** issue of University News for 3 (Three) Posts of Secretaries of different Faculty Councils of this university stands cancelled.

P. Banerjee
REGISTRAR

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN

WEST BENGAL

Advertisement No. 3/86-87

Dated. August 16, 1986.

Applications in the prescribed form are invited for the following posts in the scale of Rs. 1200-50-1300-60-1900/-. The posts carry dearness and other allowances and pensionary benefits according to the rules of the University

Secretaries Faculty Councils
for Post-Graduate and
Under Graduate Studies --Three Posts

Educational Qualifications and Experience

(a) Essential

(i) Uniformly good academic record with a B+ Master's Degree or its equivalent.

(ii) At least 10 years' experience in a position involving supervision, control and planning of Examinations, administration of Colleges or in an Institute of Higher Learning or Government or other academic bodies. At least 5 years of the 10 year's experience should be in higher position of high level administration.

(iii) Age not less than 35 years. Relaxable in case of exceptionally qualified candidates.

(b) Desirable

(i) A Doctorate Degree or published paper of high standard;

OR

(ii) Experience of at least 10 years' in a fairly senior position in any academic Institution like a College or a University or a research organisation.

The choice of the Selection Committee may not necessarily be confined to those who apply formally.

For application forms and other informations, apply to the Registrar, University of Burdwan, Rajbati. Burdwan with a Self-addressed stamped (0.80.P.) Envelope (9" × 4").

Last date of submission of application with the requisite fee of Rs. 5/- is **September 10, 1986.**

P. Banerjee
REGISTRAR

ASSOCIATION OF INDIAN UNIVERSITIES
AIU HOUSE, 16 KOTLA MARG, NEW DELHI-110002

Applications from Indian citizens are invited for the following posts in the prescribed form available on payment of Rs. 2/- from the Office of the Association :

1. **Asstt. Accountant** : Scale of Pay Rs. 650-960 : One
   1st class or high second class Commerce graduates. Should have passed at least Intermediate exam. of Chartered Accountants/Cost and Works Accountants of India, with at least 5 years supervisory experience. Persons with Computer Accounting experience will be preferred.
2. **Asstt. Section Officer** : Scale of Pay Rs. 650-960 : One
   Graduate with at least 5 years experience as a junior executive in University/Govt. Office/ Research Establishment/ Autonomous Organisation. Persons with experience of organising meetings/seminars/symposia/Documentation and publication work will be preferred.
3. **Professional Assistant** : Scale of Pay Rs. 550-900 : One
   Candidates should possess a first or second class Master's Degree in one of the Social Sciences and a Master's Degree in Library/Information Science. Experience in Documentation will be preferred.
4. **Assistant** : Scale of Pay Rs. 425-800
   Graduate with at least five years experience in Educational Institutions/Govt. Autonomous Organisation. Experience in noting, drafting, maintenance of accounts/records of sales publications will be preferred.
5. **Stenographer** : Scale of Pay Rs. 425-800 : One
   Graduate with at least five years experience as a Junior Stenographer. Candidates should have a speed of 120 wpm/60 wpm in Shorthand and typing respectively.
6. **Lower Division Clerk** : Scale of Pay Rs. 260-400
   Higher Secondary with typing speed of 40 wpm. Preference will be given to those having office experience and knowledge of shorthand.
7. **Library Attendant** : Scale of Pay Rs. 210-270 : One
   Candidate should have passed higher secondary examination and certificate in Library Science in first or second division. Experience of working in a library will be preferred.

All posts carry usual allowances generally at the Central Govt. rates. Relaxation in any of the requirements may be made in exceptional cases. The Association reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant. Canvassing in any form by or on behalf of a candidate will be a disqualification.

Applications complete in all respects should reach the office by **15th September, 1986.** Applications received after the last date or without complete information may not be entertained. SC/ST/Ex-servicemen will be given preference.

ENGINEERING COLLEGE

KOTA-324 007 (RAJASTHAN)

Advertisement No.ECK/Estt./2/86-87

Applications are invited for the following posts :

LECTURERS 7 posts (Elect. Engg.-3, Mech. Engg.-3, English-1) Scales of pay qualifications etc. as per U.G.C. rules.

Application on plain paper accompanied by a crossed postal order of Rupees Ten (payable to the Principal) and complete bio-data giving name, address, age, educational qualifications, experience, research work, publications, any other special achievements, should reach the Principal, Engineering College, Kota-324 007 on or before **20th September, 1986.** Number of posts to be filled may be changed at the discretion of the College. The College reserves the right not to fill any of the posts advertised.

PRINCIPAL

JADAVPUR UNIVERSITY

CALCUTTA-700 032

Advt. No. REG/N/289/86

Dated : 13th August, 1986

CORRIGENDUM

Reference the Jadavpur University Employment Notification Nos. A2/C/9/86 and A2/C/10/86 inviting applications for the three posts of Lecturer in Geological Sciences, three posts of Lecturer in Electrical Engineering and five posts of Lecturer in Mechanical Engineering respectively among other posts.

1. Under Notification No. A2/C/9/86—Specialisation column should read as follows :
   - (a) Lecturer in Palaeontology
     Experience in Palaeontological research work with good background of sedimentology and experience of operating scanning electron microscope.
   - (b) Lecturer in Ore Geology
     Experience of research work in Ore Geology
   - (c) Lecturer in Exploration Geology/Structural Geology/ Mineralogy, Geochemistry/Photogeology
     Working and/or research experience in any of the above branches of Geology.
2. Under Notification No. A2/C/10/86—the following modifications may be noted :

For Lecturer in Mechanical Engineering

- (a) No. of posts—Five (likely to increase)
- (b) All posts are **open posts** and the field of specialisation will be as follows :
  Heat Power/Machine Design/Fluid Mechanics/ Production Engineering/ Applied Mechanics.

For Lecturer in Electrical Engineering

For the post of Lecturer in Illumination Engineering in Electrical Engineering Department the desirable qualifications be read as follows :

> "Experience in one or more of the following areas : Experience in Lighting Industry/Design of Illuminating environments/Computer aided design of Illumination/ Industrial application of computer systems and application of computer graphics."

Other stipulations of the above posts will remain the same as notified earlier.

REGISTRAR

सम्पूर्णानन्द संस्कृत विश्वविद्यालय

वाराणसी

विज्ञापन सं. 11/86

(विज्ञापन सं. 10/86 का संशोधन)

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UNIVERSITY OF OXFORD

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Applications are invited from citizens of India, both men and women, for three Scholarships to be awarded under the terms of the Rhodes Trust, Oxford, England, to outstanding graduates of Indian Universities. The annual value of each scholarship is £ 4000. The Scholarships, tenable for two or in certain circumstances for three years are specifically for a course of study leading to a degree at the University of Oxford. Candidates must hold a First class honour degree in Pure or Applied Science, Humanities, Law or Medicine and apart from academic distinction show evidence of active interest and achievement in extra curricular activities, including sports. They must be between the ages of 19 and 25 on October 1, 1986. A memorandum containing particulars of the Scholarships scheme, together with application form, may be obtained by sending self addressed 85 Paise stamped envelope (5" × 10") to: The Secretary, Rhodes Scholarships (India), St Stephen's College, Delhi-110007.

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY

TRIVANDRUM-11

(An Institute of National importance under the Government of India)

Invites applications from Indian Nationals for the following posts :

1. Professor of Radiology
2. Assoc. Prof. of Neurosurgery
3. Assoc. Prof. of Anaesthesia
4. Asst. Prof. of Radiology
5. Asst. Prof. of Anaesthesia
6. Lecturer in Neurology
7. Lecturer in Neurosurgery
8. Lecturer in Cardiology
9. Lecturer in Pathology

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Post–1 : 50 years
Post–2 and 3 : 45 years
Post–4 and 5 : 40 years
Post–6 to 9 : 35 years

Qualification and Experience

Post–1 : (a) A medical qualification included in the First or Second schedule or Part II of the Third schedule to the Indian Medical Council Act, 1956 (Persons possessing qualification included in Part II of the Third schedule should also fulfil the conditions specifed in section 13(3) of the Act.
(b) MD / FRCP(C) / FFRCS / American Speciality Board Certification Diploma of the National Board in the Speciality.
(c) Teaching and/or research experience of not less than ten years after the prescribed postgraduate qualification.

Post–2 : (a) Same as for Post 1
(b) M.Ch / FRCS(C) / American Speciality Board Certification/ Diploma of National Board in the speciality.
(c) Teaching and/or research experience of not less than 5 years in the subject after prescribed postgraduate qualification.

Post–3 : (a) Same as for Post 1
(b) MD / FFARCS / FRCS(C) American Speciality Board Certification/ Diploma of the National Board in the Speciality.
(c) Same as for Post 2

Post–4 : (a) Same as for Post 1
(b) Same as for Post 1
(c) Teaching and/or research experience of not less than 2 years in the subject after the prescribed post-graduate qualification.

Post–5 : (a) Same as for Post 1
(b) Same as for Post 3
(c) Teaching and/or research experience of not less than 2 years in the subject after the prescribed postgraduate qualification.

Post–6 : (a) Same as for post 1
(b) DM/FRCP (C)/American Speciality Board Certification/ Diploma of the National Board in the Speciality.

Post–7 : (a) Same as for Post 1
(b) Same as for Post 2

Post–8 : (a) Same as for Post 1
(b) DM/ FRCP (C) / American Speciality Board Certification/ Diploma of the National Board in the Speciality.

Post–9 : (a) Same as for Post 1
(b) M.D. / Ph.D. / FRCP(C) / American Speciality Board Certification/ Diploma of the National Board in the Speciality.

Age, qualification and experience etc. relaxable in exceptional cases.

Applications in plain paper with bio-data of the candidates and attested copies of certificates of educational and professional qualification, date of birth, experience etc. should reach the undersigned on or **before 6-10-86.**

DIRECTOR

Advt. No. 19/SCTIMST/86
Dated : 22-8-1986

INDIRA KALA SANGIT VISHWAVIDYALAYA

KHAIRAGARH (M.P.)

Applications are invited on plain paper in three copies for the post of Registrar in the scale of pay of Rs. 2100-75-2400-100-2500/2-2625.

Academic qualifications for the post : (1) Atleast IInd class Master's Degree from a recognised University or equivalent; (2) Minimum 10 year's experience in the field of Higher Education on a Teaching/administrative post, preferably in the field of Performing and Visual Arts. **Desirable** : Five years' teaching experience if the candidate is from administrative field, Five years' administrative experience if the candidate is from teaching field.

Age limit : Minimum 40 years, maximum 55 years.

Note : *Those who have already applied* earlier in response to our advertisement in August 1985, need not apply again.

Applications together with an application fee of Rs. 20/- be sent in the name of the Vice-Chancellor, Indira Kala Sangit Vishwavidyalaya, Khairagarh (M.P) Pin-491-881 and must reach the University office on or before **30th of September, 1986.**

M.K. Gangajaliwale
REGISTRAR

AMRAVATI UNIVERSITY

Employment Notice

No. 1-B/4637/86 **22nd August, 1986**

Applications are invited for the following posts :

READER—1 Applied Electronics Rs. 1200-1900
LECTURERS—2 (1 SC) Computer Science Rs. 700-1600

QUALIFICATIONS— Reader in Applied Electronics—Good academic record with Doctoral Degree or equivalent published work. Evidence of being actively engaged in (i) Research or (ii) Innovation in teaching methods, or (iii) Production of teaching materials. Five years experience of teaching and/or research provided that atleast 3 of these years were as lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

In case of persons from Industry or

Professional fields—Qualifications as prescribed above OR Good academic record with recognised professional work of about 7 years which should include innovation and/or research and development.

Lecturer in Computer Science—Master's Degree in the field of Computer Science or equivalent OR S.E./B. Tech. in Computer Science with First Class. One year teaching/ professional experience desirable. In absence of candidate from SC post is likely to be filled from open category.

Age Limit as per rules.

8 copies of prescribed application forms can be had from University Office on payment of Rs. 25/- through Bank Draft in favour of undersigned and applications alongwith D.D. of Rs. 15/- as application fee should reach the undersigned by **30th Sept. 1986.**

S.S. Chaube
REGISTRAR

OFFICE OF THE PRINCIPAL REGIONAL ENGINEERING COLLEGE

HAMIRPUR-177001

Applications are invited for the following posts :

I. **Professor one each in Civil Engineering, Mechanical Engineering and Electrical Engineering in the pay scale of Rs. 1500-2500.**

Educational Qualifications
Essential

1. **Basic** : Bachelor's degree in appropriate branch of Engineering recognised by the University with atleast 1st class at Bachelor's Degree and/or Master's Degree level.
2. Doctorate Degree in concerned branch of Engineering/ Specialisation of subject in appropriate branch of Engineering recognised by the University.
3. Atleast 10 years experience in teaching and/or research in an Institution of University standard.
4. Experience of guiding research at Doctorate level.

Desirable

1. Professional scientific/ Research work of outstanding merit.
2. Experience in curriculum development.
3. Published work of high standard.
4. Membership of Professional bodies.
   Age : Between 35 to 50 years.

II. **Assistant Professor in Electrical Engineering, Electronics and Communication Engineering, Civil Engineering and Mechanical Engineering (One each) in the pay scale of Rs. 1200-1900.**

Educational Qualifications
Essential

1. A first class (or equivalenti) Master's Degree/ Doctorate Degree in appropriate field of Engineering/ Technology.
2. Consistently good academic record with a Bachelor's Degree in appropriate branch of Engineering/ Technology. First class at Bachelor's Degree and/or Master's degree level.
3. Atleast 5 years experience in teaching/ Research at the Institute of University standard.

Desirable

1. Professional/ Scientific/Research work of outstanding merit.
2. Experience in curriculum Development.
3. Published work of high standard.
4. Membership of professional bodies.
   Age : Below 45 years.

The posts shall carry the allowances as admissible by the State Government of Himachal Pradesh/ approved by the Board of Governors from time to time.

Candidates in Government service, semi Government service/Public undertaking must apply through proper channel.

Age limit relaxable in case of well qualified candidates.

No Rail/Bus fare or T.A./D.A. will be paid to the candidates appearing for interview.

The applications should reach the office of Principal, Regional Engineering College, Hamirpur-177 001 by **25th September, 86.**

The candidates should attach with application a self addressed envelope 4"×10" duly stamped worth Rs. 3.25 superscribed "APPLICATION FOR THE POST OF (NAME OF THE POST) REGIONAL ENGINEERING COLLEGE"

The application should be typed, giving the name of candidate, father's name, date of birth, address for correspondence, permanent address, educational qualification, category to which belongs etc. The photostat attested copies testimonials (duly attested by the candidate himself) alongwith a recent passport size photograph should be attached with the applications.

The Principal reserve the right to increase or decrease the number of posts.

Each application should accompany a crossed postal order in the name of Principal, Regional Engineering College, Hamirpur (HP) amounting to Rs. 7.50 paise. No Draft/Cheque shall be accepted.

JADAVPUR UNIVERSITY

CALCUTTA-700 032

Employment Notification No. A2/C/11/86

Dated: August 20, 1986

The University invites applications in the prescribed form for the following post :

1. Professor of Printing Technology – One post

Scale of Pay: Rs. 1500-60-1800-100-2000-125/2-2500/-

Qualifications

Essential : An eminent scholar with published work of high quality actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer/Technologist with established reputation who has made significant contribution to knowledge.

Desirable/Other requirements

(i) Good academic record with a Master's degree in Printing Technology or equivalent.

(ii) Out of a total minimum ten year's experience of which five years in teaching/ research

Last date of receiving application is **September 22, 1986.**

Application forms are obtainable from the University Office during working hours on payment of Rs. 2/- or by post on payment of Rs. 3/- including postages. Higher initial salary may be given to really deserving candidates. Those who are in employment should submit their applications through proper channel. Choice of Appointment Committee will not necessarily be confined to applicants only. Canvassing in any form will disqualify a candidate.

REGISTRAR

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